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**Final Technical Report**  
**February 2001**



**NATIONAL INSTITUTE OF JUSTICE (NIJ)  
REQUIREMENTS DEFINITION, ADVANCED  
GENERATION INTEROPERABILITY FOR LAW  
ENFORCEMENT (AGILE) PROGRAM  
DEVELOPMENT, AND TECHNICAL ASSISTANCE**

**SM&A Corporation(East)**

**Robert L. DeCarlo Jr.**

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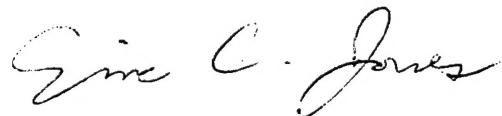
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## **1. BACKGROUND**

The mission of the National Law Enforcement and Corrections Technology Center–Northeast Region (NLECTC-NE), in conjunction with the Air Force Research Laboratory/Information Directorate (AFRL/IF), is to facilitate the identification, development, and adoption of new products and technologies specifically designed for law enforcement, corrections, and other criminal justice applications. The current technology thrust areas for the Northeast Region are Concealed Weapons Detection, Secure Communications, Timeline Analysis, Computer Forensics, Audio/Video Processing, Information Management, Automatic Speaker Recognition, Automatic Language Translation and Facial Recognition. This report outlines the major accomplishments of the NLECTC-NE under the SM&A Corporation Task Ordering Contract (TOC).

### **1.1 NLECTC-NE CENTER**

The NLECTC-NE Center is located in Central New York at the Air Force Research Laboratory/Information Directorate (formerly Rome Laboratory) in Rome, NY. SM&A Corporation and New York State Technology Enterprise Corporation (NYSTEC) support the management of the Center under contract. The Team consists of both SM&A Corporation and NYSTEC personnel.

## **2. OUTREACH ACTIVITIES**

Part of the mission of the Center is to publicize the activities and the services of the NLECTC system to the state and local law enforcement and corrections community. This is accomplished by presentations at key conferences and meetings, by conducting demonstrations of technologies at Tech Fairs, and by working with an advisory council.

### **2.1 PRESENTATIONS, CONFERENCES, MEETINGS, AND DEMONSTRATIONS**

We have conducted a number of outreach activities such as presentations and attendance at regional and national law enforcement and corrections conferences and seminars across the Northeast. A list of the conferences and meetings is shown in Table 2.1.

**Table 2.1: Outreach Activities/Conferences**

| <b>DATE</b> | <b>CONFERENCE</b>                                  | <b>LOCATION</b>          |
|-------------|--|--------------------------|
| March 1999  | Second Computer & Network Forensic R&D IPT meeting | AFRL/IF                  |
| March 1999  | Mid Hudson Crime Prevention Association            | Newburgh, NY             |
| May 1999    | OLETC's 2 <sup>nd</sup> Annual Mock Prison Riot    | Wheeling, WV.            |
| May 1999    | Computer Forensic Research and Development Center  | Utica College, Utica, NY |

|                |   |  |
|----------------|---|--|
| May 1999       | Economic Crime Summit   | NIJ                                    |
| May 1999       | New York State Lt. Governor's Task Force on School Safety                 | Whitesboro High School, Whitesboro, NY |
| May 1999       | Technologies & Tools for Public Safety in the 21 <sup>st</sup> Century    | Orlando, FL                            |
| May 1999       | Meeting w/ Rome Superintendent of Schools                                 | Rome, NY                               |
| June 1999      | NLECTC-NE Gang Information Seminar  | NLECTC-NE                              |
| June 1999      | Long Island Association of Crime Prevention Officers                      | Garden City, NY                        |
| June 1999      | NLECTC-NE Training Seminar for New York State Union of Police Association | Newburgh, NY                           |
| June 1999      | Police Security Expo '99  | Atlantic City, NJ                      |
| July 1999      | National Technical Investigators Association (NATIA)                      | Buffalo, NY                            |
| July 1999      | NIJ Technology Fair   | Rayburn Building Washington, DC        |
| July 1999      | First Lady Hillary Clinton Visit  | AFRL/IF                                |
| August 1999    | Safe School Forum   | Charleston, SC                         |
| August 1999    | American Correctional Association Conference                              | Denver, CO                             |
| September 1999 | NLECTC-SE 1033 State Coordinator's Conference                             | NLECTC-SE                              |
| October 1999   | Michigan State Police Academy   | Lansing, MI                            |
| October 1999   | Chester County (PA) Technical Assistance Kickoff Meeting                  | Chester County, PA                     |
| November 1999  | International Association of Chiefs of Police Conference                  | Charlotte, NC                          |
| December 1999  | NIJ Biometrics Conference   | Denver, CO                             |
| December 1999  | Air Force Scientific Advisory Board                                       | AFRL/IF                                |

|               |   |                   |
|---------------|---|-------------------|
| December 1999 | 3rd Annual International Crime Mapping Research Conference                                      | Orlando, FL       |
| January 2000  | Rome Lab Days Meetings  | MITRE Corporation |
| January 2000  | School Safety Incident Based Reporting and Mapping Meeting                                      | Utica, NY         |
| January 2000  | NYC Citizens Crime Commission Tech Demo   | New York, NY      |
| February 2000 | New York Electronic Crime Task Force (NYECTF) Quarterly Meeting                                 | New York, NY      |
| February 2000 | Janus Associates Bridge Project Presentations   | New York, NY      |
| March 2000    | New Technologies for Solving Crime in the 21 <sup>st</sup> Century                              | Mashantucket, CT  |
| March 2000    | Cyberscience Lab (CSL) Grand Opening/NIJ Tech Fair  | NLECTC-NE         |
| April 2000    | PTI Conference  | Denver, CO        |
| April 2000    | John Jay College of Criminal Justice's School Safety Conference                                 | New York, NY      |
| April 2000    | Defense Logistics Agency (DLA) Law Enforcement Support Office (LESO) annual National Conference | Ft. Belvoir, VA   |
| April 2000    | New York State County Correctional Instructors Association Annual Meeting                       | Verona, NY        |
| April 2000    | Sandia National Labs/NLECTC-NE School Safety Assessment   | Boston, MA        |

## 2.2 NLECTC-NE ADVISORY COUNCIL

The NLECTC-NE Advisory Council is composed of law enforcement and corrections practitioners from each of the sixteen states in the Northeast region. Their mission is to provide prioritization of requirements, address state and local issues, and to support interfaces with the law enforcement and corrections community within each state. The Council meets semi-annually within the various states in the Northeast region and we fully support each meeting, including the planning and coordinating of sites, agendas, travel arrangements and guest speakers.

NLECTC-NE Advisory Council Meetings were held in Burlington, VT on May 11-12 1999, in Rome, NY on September 29-30 1999, and in Cromwell, CT on April 6-7 2000.

### **3. SCIENTIFIC AND ENGINEERING ASSISTANCE**

#### **3.1 SCHOOL SECURITY**

Several projects were initiated dealing with state and local law enforcement school security issues. Activities and meetings are noted as follows.

Two School Security proposals were drafted and presented to NIJ. The first proposal is to work with the Idaho National Engineering Lab (INEL) and build a prototype CWD device called a Passive Magnetic Gradiometer for installation in the New York City School System. The second proposal is to investigate audio processing techniques and technologies to reduce the impact of terrorist activities, such as bomb and arson threats, made by telephone. NLECTC-NE personnel coordinated with the New York Police Department School Safety Division to develop a formal relationship to implement a CWD test-bed for testing and evaluation. It was determined that the CWD program would provide a SecureScan 2000 passive metal detector developed under contract by INEL for a test-bed evaluation and technical support to ensure proper usage of the technology. The NLECTC-NE will ensure that the NY City School officials properly evaluate the technology. A proposal to perform this effort was submitted by the NLECTC-NE to NIJ's Office of Science and Technology and the New York City School System.

SM&A personnel worked with the Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP) and SUNY Institute of Technology Utica/Rome on coordinating a Satellite Teleconference on School Safety. The teleconference, "*Promising Practices for Safe and Effective Schools*", provided information on strategies for school safety and allowed participants to ask questions of the panelists. It was broadcast to over 700 host sites throughout the United States and was part of a larger three-day meeting entitled "*Safe and Effective Schools for All Students: What Works*", held in Washington, DC.

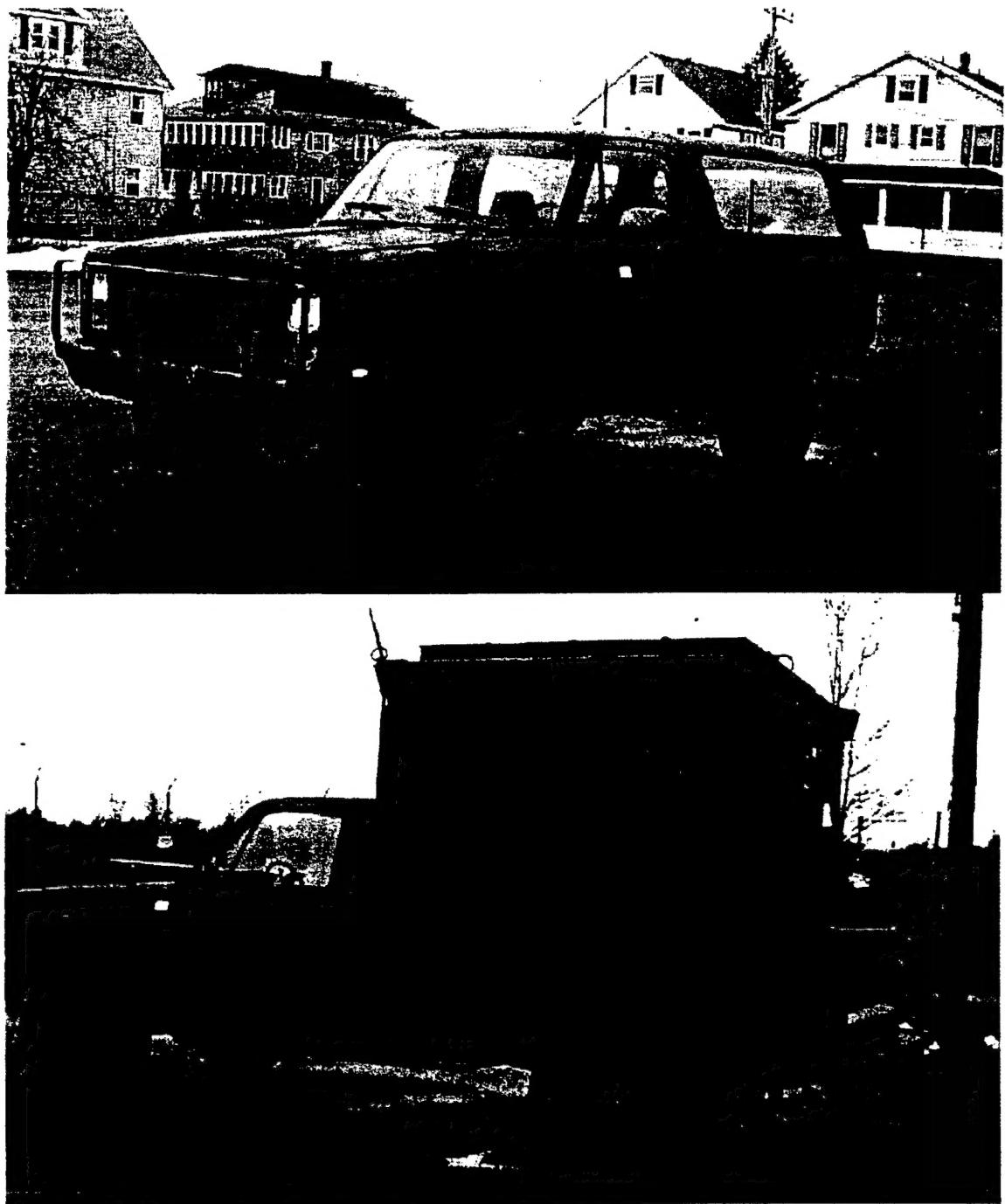
NLECTC-NE personnel worked with Sandia National Labs on a School Safety Assessment at the Madison Park Technical-Vocational High School in Boston, MA. The basic premise behind this assessment is that Congress has allocated \$100,000 for a school safety grant to implement new security measures. We will continue to work with Sandia in evaluating Madison Park in conjunction with the Boston Board of Education and Madison Park High School Officials.

#### **3.2 1033 PROGRAM SUPPORT**

Assistance with the 1033 Federal Surplus Property Program was given to 34 specific Law Enforcement agencies from all over the Northeast. A total of \$453,863 in excess equipment was transferred to Law Enforcement. This included, two 2 1/2-ton trucks with shelters, 6 security cages, 220 portable radios, 17 hand-held radios, a pickup truck, a Chevy Blazer, a 15 kilowatt generator, a trailer, and a communication's box. Some of the equipment is shown in Figure 3-1 below.

#### **3.3 SULLIVAN COUNTY DISTRICT ATTORNEY ASSISTANCE**

NLECTC-NE personnel assisted in coordinating and developing the images that were provided to the Sullivan County NY DA's Office. These images were used in the successful prosecution of a child torture case, which gained National attention due to its severity. A computer-generated demonstration was used to illustrate the progression of the child's injuries, which in turn, led to the suspects pleading guilty of first-degree murder.



**Figure 3-1: Examples of Surplus Equipment Obtained by Law Enforcement Agencies  
Facilitated by NLECTC-NE**

### **3.4 SUPPORT TO THE UTICA ARSON STRIKE FORCE AND ONEIDA COUNTY DRUG ENFORCEMENT TASK FORCE**

NLECTC-NE personnel provided technical support to the Utica Arson Strike Force (UASF) and Oneida County Drug Enforcement Task Force (OCDETF) to maintain and upgrade capabilities provided under previous NIJ contracts. Specific activities included:

- Upgrading the database capabilities to allow storage of photographs;
- Upgrading the database used to store arson information;
- Demonstration of prototype capabilities for using handheld devices to enter data; and
- Assisting in rearranging the UASF network following renovation of their physical office space.

### **3.5 CHESTER COUNTY COMMUNICATIONS STUDY**

NLECTC-NE personnel coordinated a technical request for communications interoperability for Chester County (PA). NLECTC-NE began technical research for relevant communications issues in Chester County, i.e., FM propagation, simulcast, and review of a previous study done on a similar system in McLean County (IL). These issues were needed for a thorough understanding of Chester's radio system. Center personnel obtained radio site information from Chester County and performed computer simulation of their radio coverage. A kick-off meeting on site in Chester County was held and additional data was collected with on site interviews of officers and ride alongs conducted. The technical assistance project was then completed for Chester County and the final briefing and report were delivered.

### **3.6 OTHER SCIENTIFIC AND ENGINEERING ASSISTANCE EFFORTS**

Technical support has been provided to the New York State (NYS) Department of Correctional Services (DoCS) Product Evaluation Committee (PEC). The PEC evaluates new products to be procured by the NYS DoCS system or facilities. Information coordination has been provided for the PEC by tracking product evaluations in other states to facilitate information exchange and provide technical advice on products under evaluation.

General technical support to the NLECTC-NE has been provided including compilation of reports for NIJ, conference and meeting coordination, maintenance of the Northeast website, and grant assistance. There have been 890 requests for information received by the NLECTC-NE since the Center began operations. These included audio/video demonstrations, grant information, 1033 surplus equipment, publications, and general information on Center functions and activities.

## **4. TECHNOLOGY INITIATIVES**

### **4.1 CONCEALED WEAPONS DETECTION**

A member of the SM&A team demonstrated the *Jaycor CWD-05* Acoustic Concealed Weapon Detector at the Office of Law Enforcement Technology Commercialization's (OLETC) Mock Prison Riot held in WV, the National Institute of Justice's (NIJ) Technology Fair held in Washington, DC and at various other NLECTC functions and events.

## **5. SPECIAL PROJECTS**

### **5.1 ADVANCED GENERATION INTEROPERABILITY FOR LAW ENFORCEMENT**

The Advanced Generation of Interoperability for Law Enforcement (AGILE) program is a major commitment by the National Institute of Justice (NIJ) to address the issues of interoperability that hamper effective and efficient cooperation among multiple law enforcement and other public safety agencies. Interoperability issues appear in various ways: communications systems which cannot support inter-agency communications, information that is not accessible by all agencies who need it, and open case and suspect information maintained by one agency that is unknown by other agencies working on related cases. The AGILE program is a broad-based set of activities to address the varied aspects of the interoperability challenge, organized into three major thrust areas:

- Research, development, test, and evaluation (RDT&E);
- Standards identification, development, and adoption; and
- Outreach and technical assistance.

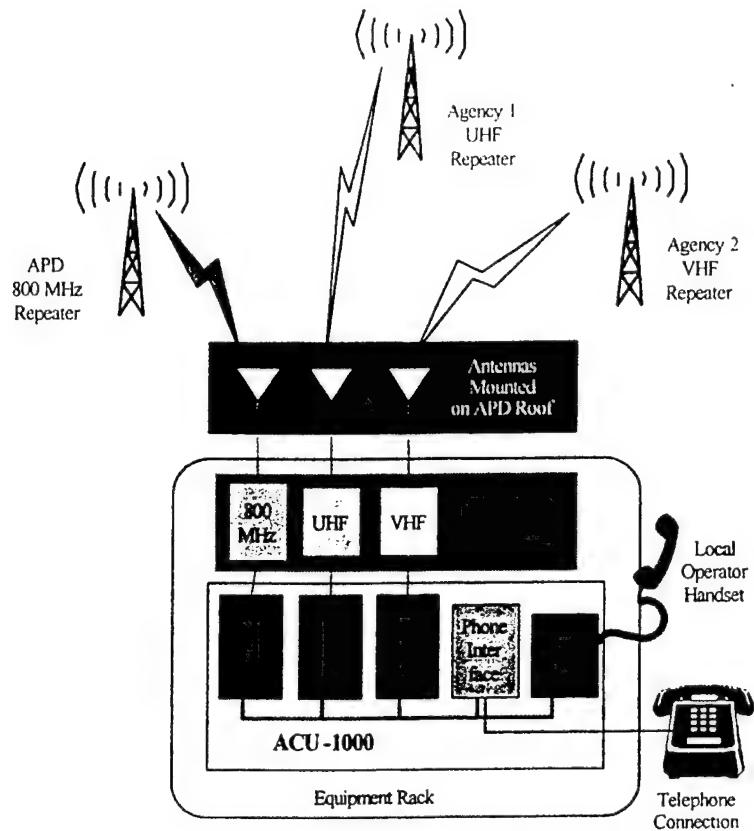
A key component of the AGILE RDT&E thrust area is an Operational Test Bed (OTB) in a public safety environment to integrate, test, and evaluate technologies that can contribute to addressing interoperability needs. For the OTB, candidate technology solutions to specific interoperability requirements are categorized and evaluated to address key issues of voice over-the-air interoperability, data transmission interoperability, data sharing, and data analysis. The evaluations include quantitative performance measurements as well as qualitative evaluations of the impact of the technology on law enforcement agency operations.

NIJ has partnered with the Alexandria Police Department to be the focal point of an Operational Test Bed (referred to as the Operational Test Bed-Alexandria, or OTB-A) to evaluate interoperability technologies. SM&A Corporation, under contract to the NLECTC-NE, is providing the technical and systems engineering support for integrating technologies into the OTB-A.

Activities in support of the OTB-A have generally involved two major initiatives: the deployment of crossband technology to facilitate voice communications among multiple agencies operating radio systems on different frequency bands; and technology to facilitate rapid image dissemination of images of missing children when officers respond to a missing child call. In addition to these two initiatives, the NLECTC-NE is also providing technical support to a pilot project to further investigate applications of crossband technology in a pilot project in Syracuse, NY. Finally, the NLECTC-NE team has also provided support to other AGILE activities, including research and develop, identification and development of standards, and education/outreach activities. Each of these activities is described in the sections that follow.

#### **5.1.1 Crossband Technology for Voice Communications Interoperability**

A fundamental interoperability challenge is over-the-air voice communications among agencies that have different radio systems operating in different radio frequency bands. A team led by the NLECTC-NE is installing a gateway device in the Alexandria (VA) Police Department. This gateway will provide direct connectivity between the radio systems of the Alexandria Police Department and departments with overlapping or adjacent jurisdiction, accommodating the fact that these systems operate at different frequency bands (VHF, UHF, and 800 MHz).



**Figure 5-1: Operational Concept for Communications Interoperability at APD**

Each of the agencies that will participate in this operational evaluation has their radio repeater sites that provide communications coverage on their frequencies for their areas of responsibility. The configuration, shown in Figure 5-1, will connect each of the agencies together through appropriate radios interconnected by the gateway device at APD. The configuration will allow each agency to connect to a telephone, or one or more radios of another agency. In addition to two-way connections between radios, the gateway device can simultaneously connect all interfaces (radios and telephone) to provide a conference call capability that could be used during multi-jurisdictional incidents.

There are a number of devices available today that can be used as the basis for such a gateway device. For this initiative, an ACU-1000 Intelligent Interconnect System is being used.

A configuration of the ACU-1000, along with the radios and antennas needed to create the gateway system, was designed and procured to meet the specific operational requirements of APD and other participating agencies. The initial configuration included an 800 MHz radio, a UHF radio, and a VHF radio. Engineering tests were conducted on the ACU-1000 (in its transportable configuration) by NLECTC-NE personnel using AFRL test facilities at the Verona Test Site, as shown in Figure 5-2, Figure 5-3, and Figure 5-4. The unit was subsequently sent to the National Telecommunications and Information Administration (NTIA) Institute of Telecommunication Sciences for additional tests to ensure that the device meets the operational requirements of the end users.

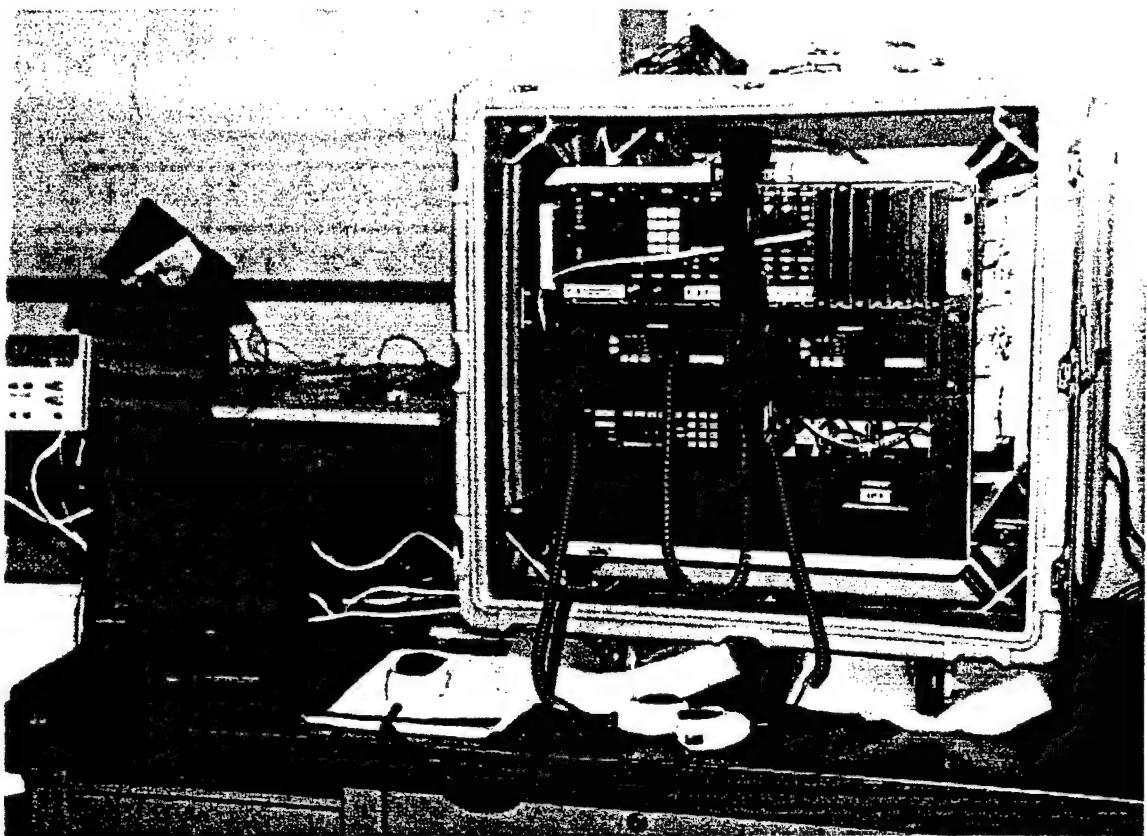


Figure 5-2: Front of ACU-1000 Setup For Verona Test Site Evaluations

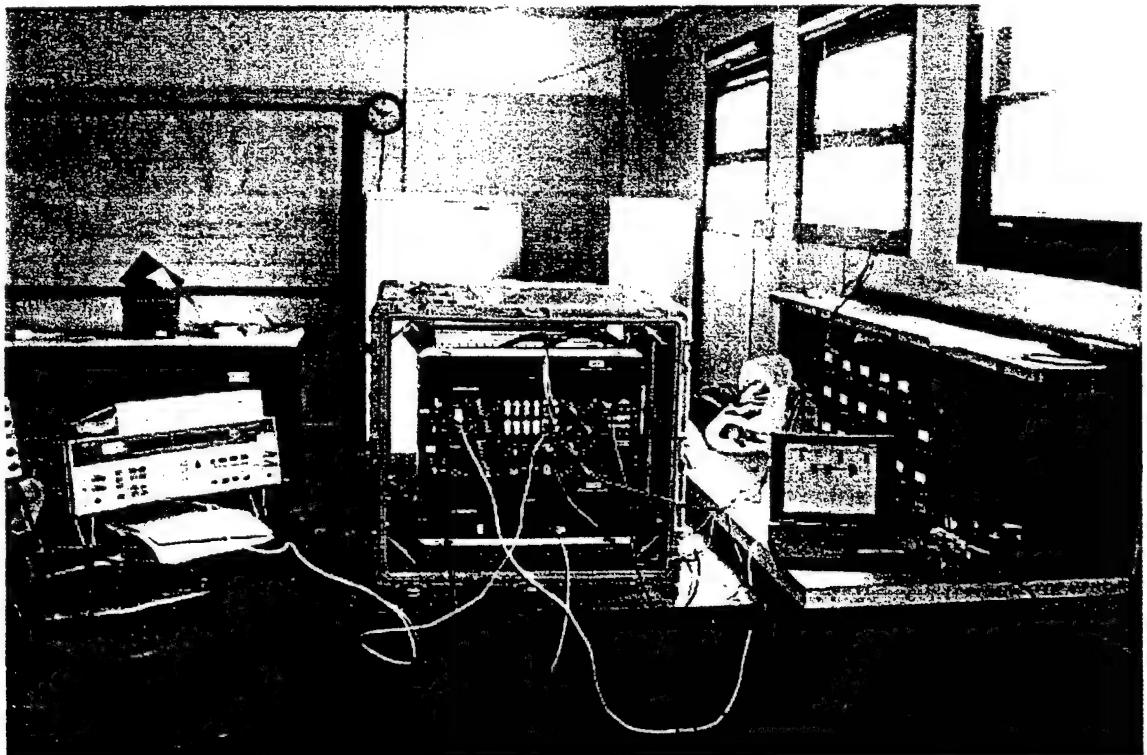
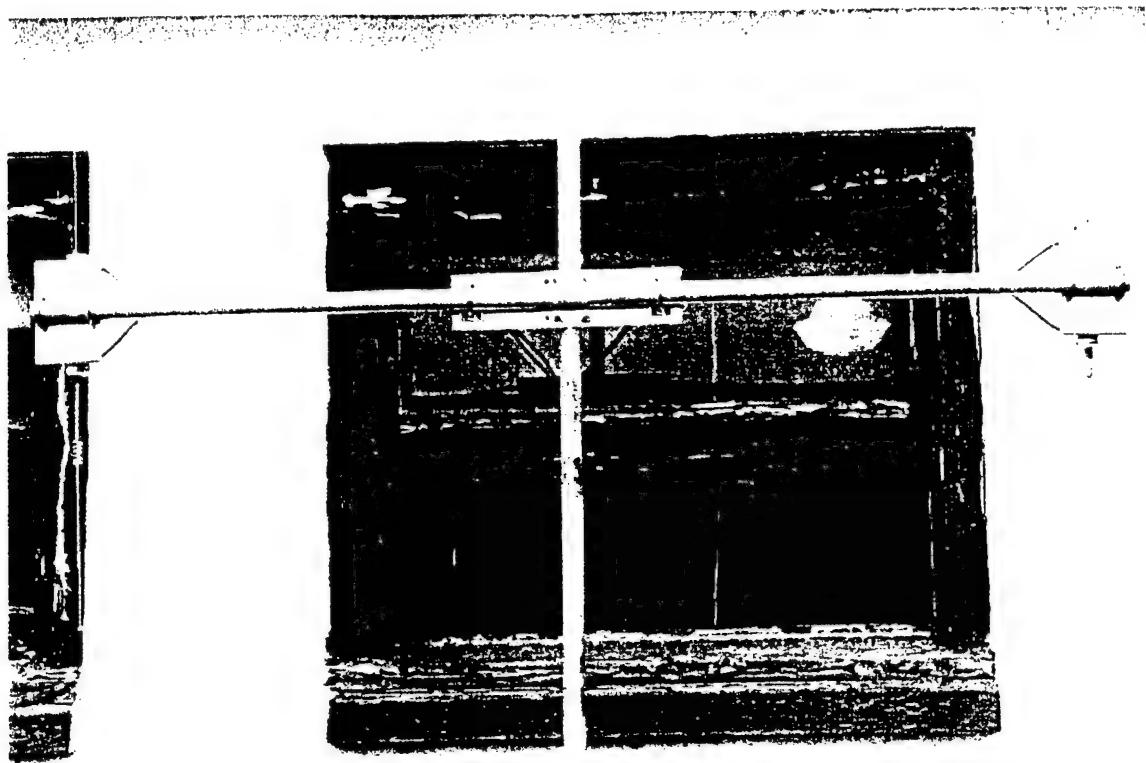


Figure 5-3: Rear of ACU-1000 Setup For Verona Test Site Evaluations



**Figure 5-4: Antenna System Used for Field Tests**

As part of the assessment of the utility of the device, the ACU-1000 was installed in an APD utility vehicle, as shown in Figure 5-5. This exercise represented using a device configured for fixed site installation in a mobile environment. The exercise addressed several issues including power management and unit serviceability.



**Figure 5-5: Deployment of ACU-1000 in APD Utility Vehicle**

The radios interfaced to the ACU-1000 were programmed to the frequencies of the Metropolitan (DC) Police Department (MPD), United States Parks Police (USPP), and Washington Metropolitan Area Transit Authority (WMATA) Police, and the ACU-1000 was installed in a temporary configuration as part of the equipment familiarization. These evaluations included testing of the capability to access the ACU-1000 via phone lines and cell phone. Antennas were temporarily mounted on the roof of the APD headquarters building to check out operations, as shown in Figure 5-6.



**Figure 5-6: Temporary Installation of Antennas for ACU-1000 Demonstration**

A plan for the final permanent installation of the ACU-1000 was also developed, and the necessary equipment, including antennas, cabling, equipment rack, and remote audio unit for the dispatch supervisor was procured. NLECTC-NE personnel also worked with APD personnel, including the communications center management and operational units, to plan for the operational use of the system.

Part of the activity in working with the ACU-1000 in Alexandria included comparing the approach to be deployed in Alexandria with other crossband projects and exchanging lessons learned and technical information. Other projects the were considered included an installation of an ACU-1000 as a fixed component of the Army Corps of Engineers Norfolk District communications system; mobile ACU-1000s (known as TRP-1000s provided to public safety agencies by the Office of State and Local Domestic Preparedness Support (OSLDPS); and demonstration projects sponsored by the Public Safety Wireless Network (PSWN) project. In addition, we began to research products, and research and development projects that can potentially facilitate voice communications interoperability, such as the IGX Switch

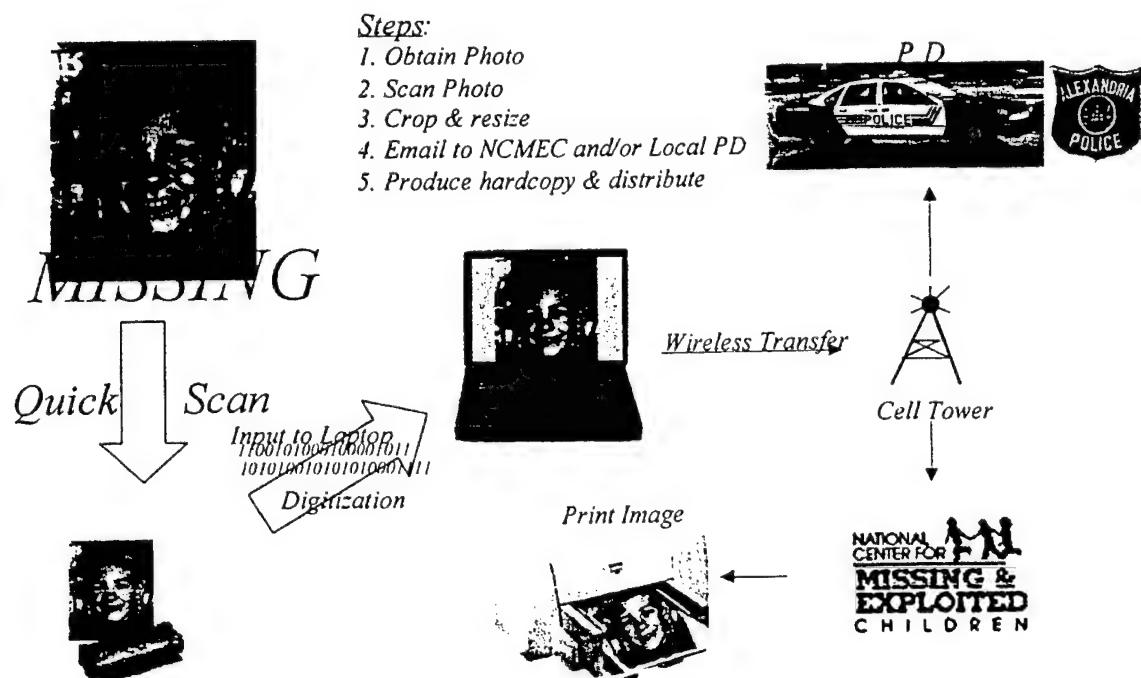
manufactured by Redcom Laboratories and the Joint Combat Information Terminal (JCIT) developed by the Naval Research Laboratory.

In addition to trip reports, status reports, and presentations, the following working papers relating to the ACU-1000 were generated over the course of the contract:

- Operational Test Bed-Alexandria (OTB-A) Communications Interoperability Operational Concept
- Plan for Integration of a Gateway Subsystem into the Operational Test Bed-Alexandria (OTB-A) Communications Interoperability System
- Lessons Learned Technical Memorandum
- Crossband Technology for Voice Communications Interoperability Data Sheet

### **5.1.2 Rapid Image Dissemination for Missing and Exploited Children**

Technology exists to facilitate the rapid dissemination of images in scenarios involving missing and exploited children. Another initiative undertaken in the OTB-A is an integration of relatively inexpensive commercially-available equipment to provide a rapid dissemination of images of children and to interface with the existing infrastructure put in place by the National Center for Missing and Exploited Children (NCMEC). The objective of this technology integration is to provide a means for shortening the timeline from when an officer first responds to a missing child call until the time that photographic images arrive at the location where they can be useful (e.g., in other patrol cars and at the NCMEC).



**Figure 5-7: Concept for Rapid Image Dissemination for Missing and Exploited Children**

The initial deployment utilizes a Canon BJC-50 handheld scanner/printer connected to a laptop computer in a patrol car. As depicted in Figure 5-7, an officer responding to a missing child call can immediately scan a photograph to capture an image which then can be either transmitted back to a police station for further processing, or be cropped and sized by an officer directly on his/her laptop. In addition to immediate dissemination of the image to other officers, the printer capability can be used to generate hardcopies on the scene for distribution and neighborhood canvasses. In addition, the capability to format images and transmit them to the NCM&EC has also been incorporated.

Initial proof-of-concept development was conducted in conjunction with the Rome (NY) Police Department, and some preliminary tests were executed to exercise the capabilities of the hardware. More recently, we have focused on developing a Windows-based user interface that simplifies the process described above, including addition of a print preview feature, additional Poster formats, and additional data entry fields based on APD's standard missing child flyer. The sequence of steps supported by the software is listed in Table 5.1. The capability was installed in APD's Youth Bureau for testing.

**Table 5.1: RIDM&EC Software Process**

|                   |  |
|-------------------|--|
| Step 1:           | Provides the user with the opportunity to scan a new image or to open an existing image. Images are cropped to exactly 400 by 500 pixels. Error trapping and the 'open file' browse dialog box are included. (Screen shown above.) |
| Step 2:           | Rotates the image if it was scanned upside down.   |
| Step 3:           | Input fields for the 'Personal Identification Information' such as the Name, DOB, etc.   |
| Step 4:           | Input fields for the 'Event Information' such as date missing, etc.  |
| Step 5:           | Input fields for the 'Contact Information' such as Investigator's name.  |
| Step 6:           | Information is presented for review and choices are provided for the user to print and/or email the information.   |
| Print Dialog Box: | Provides a list of all the reports and allows the user to select one of them. Once selected, the report can be either printed or previewed.  |
| eMail:            | This window displays the email data. The fields can be edited and additional comments can be added to the body of the eMail message. The picture is automatically attached and the message body is automatically formatted.        |
| Print Preview:    | This window shows the report as it will appear in printed form. There is a button which zooms the preview for a closer look.   |

This capability is currently undergoing test and evaluation at the Alexandria (VA) Police Department as part of the AGILE Operational Test Bed. Results will then be made available to interested law enforcement agencies. Applications to additional scenarios such as missing older adults, domestic violence, wanted persons, stolen articles, and so on, are also under consideration.

### **5.1.3 Syracuse Pilot Project**

The primary application of the pilot project is in support of Weed and Seed operations. Part of the Weed and Seed operations in the city of Syracuse involve focused campaigns on drug dealers and other criminal enterprises. Typically these operations involve federal, state, and local law enforcement agencies.

Often these operations involve officers and agents from multiple agencies working together in undercover investigations. These activities are characterized by encrypted communication over a relatively limited geographic area. In many cases an unmarked vehicle is stationed in the vicinity to support communications and surveillance equipment. Surveillance and support teams typically carry portable radios, although a surveillance team could also be located in vehicles equipped with mobile radios.

In addition to investigative operations, the conclusion of a Weed and Seed operation is typically marked by a roundup of suspects that are the subjects of the operation. Simultaneous execution is an important component of such operations, emphasizing the need for communications among the participating agencies.

As part of this pilot program, the NLECTC-NE provided technical assistance to define operational requirements and design two different crossband approaches: one involving a low cost 2-channel repeater system for connecting two agencies conducting tactical operations in a limited geographical area, and a capability utilizing an ACU-1000 system for city wide operations. This project also includes considerations when dealing with encrypted communication, which was not addressed in the OTB-A.

### **5.1.4 Support to Other AGILE Initiatives**

The AGILE program is a broad program that includes a number of activities in addition to those described in this section. Other components of the NLECTC system have responsibilities for other initiatives; the NLECTC-NE provided support to other activities including research and development, standards, and outreach. Support included joint planning and review of technical documentation. Support for outreach also included participation in a number of Tech Fairs and other demonstrations, including the following:

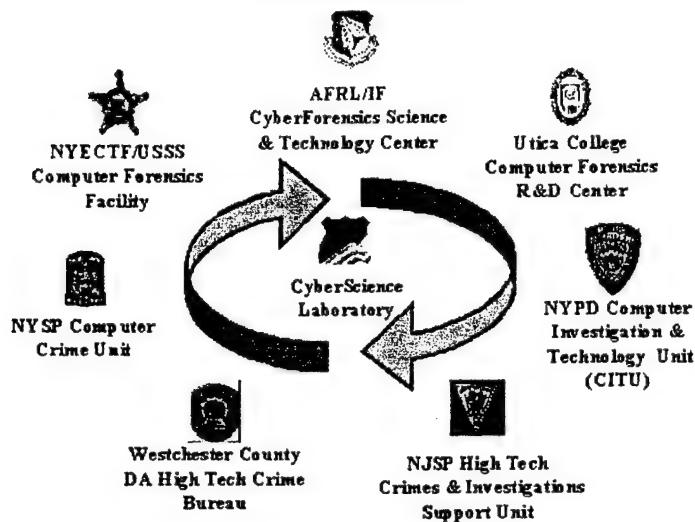
- July 1999: Rayburn Office Building, Washington, DC
- January 2000: Law Enforcement and Corrections Technology Advisory Council meeting, Charleston, SC
- April 2000: Public Technology, Inc. Annual Conference, Denver, CO

## **5.2 COMPUTER CRIME INITIATIVES**

### **5.2.1 National Law Enforcement CyberScience Laboratory (NLECSL-NE)**

NLECTC-NE coordinated the establishment of the National Law Enforcement CyberScience Laboratory - Northeast (NLECSL-NE), also known as the CyberScience Lab (CSL). The mission of the CSL is to provide e-crime technical assistance, build a forensic tool knowledge base, and heighten awareness of cybercrime issues among federal, state and local law enforcement agencies. It is the first such lab in the northeast, co-located with the Air Force Research Laboratory/Information Directorate (AFRL/IF) in Rome, NY at the Griffiss Business and Technology Park. CSL is in partnership with several state and local law enforcement agencies and Utica College as shown in Figure 5-8.

## National Law Enforcement CyberScience Laboratory -Northeast Virtual Environment



**Figure 5-8: National Law Enforcement CyberScience Laboratory-Northeast Virtual Environment**

The CSL is involved in multiple projects that encourage government, industry and academic collaboration to address cybercrime technical issues. The Rochester Project Computer Technology Investigation Seminar involved an e-crime workshop with participants varying from law enforcement to private sector computer security specialists. This cooperative effort has resulted in increased levels of knowledge, awareness and cooperation in the fight against cybercrime.

The e-Crime Intern Program provides a unique opportunity for college students to gain knowledge and hands-on experience in the field of cyberscience in the law enforcement community. The foundation of this program is a joint venture between academia and both the public and private sectors in an effort to expose students to a challenging experience in support of cyberscience developments.

Another venture of the CSL is the distribution of e-crime technology and tools and providing training materials to state and local law enforcement agencies, high tech crime task forces and regional computer forensics crime laboratories. Software tested included 'extractor', a utility developed by WetStone Technologies and used to recover deleted data from Linux-based systems. Guidance Software's 'EnCase' software was also exercised. EnCase is a tool developed specifically for the computer forensics arena. Another tool is the Analyst Notebook software used in performing various analyses of the Melissa Virus case. The software allows investigators or analysts to generate charts that will help read through complex information and discover key information throughout an investigation. The Link Notebook portion of the software is a visualization tool that is designed to link charts to uncover, interpret, and display connections and relationships within data. The Case Notebook portion of the software is a visualization tool that creates charts in which events are positioned on a timeline allowing the charts to reveal sequences of events over time during an investigation. This part of the software is also useful for establishing the cause and effect of events and corroborating witness statements.

NLECTC-NE also began planning for CFX 2000, a cyber forensics experiment that is a collaborative effort between the Department of Defense (DoD), NIJ, various law enforcement

agencies, the commercial sector and academia. This three-day experiment seeks to provide technical analysis and evaluation of computer forensic tools and provide recommendations for the law enforcement and military defense communities in response to cyber threats. The approach involves the enactment of a pragmatic scenario depicting a cyber attack on an information and economic infrastructure.

As a member of the New York Electronic Crimes Task Force (NYECTF), CSL has formed a partnership with the United States Secret Service (USSS) and a host of other public safety agencies and private corporations. In January 2001, the NYECTF, in partnership with various sponsors, will present the International Conference on e-Crime (ICE): Prevention, Detection and Enforcement. ICE will feature keynote speakers, panel discussions, papers, presentations, tutorials and exhibits highlighting the prevention, detection and enforcement of electronic crime. The conference seeks to provide a collaborative environment in which law enforcement practitioners, technologists, and researchers can address the rapidly emerging threat of electronic crime.

The Computer Forensics Research & Development Center of Utica College (CFRDC-UC) had its opening/ribbon cutting. The purpose of the CFRDC is to support research, development, and education in the area of computer forensics. The NLECTC-NE worked closely with the CFRDC-UC to help it focus on the requirements of state and local law enforcement agencies.

### **5.2.2 Electronic Crime Needs Assessment**

The NIJ Electronic Crime Needs Assessment was held at NLECTC-NE. The NLECTC-NE hosted 30 law enforcement practitioners from every state in the Northeast region to participate in the Needs Assessment. It consisted of interviews and focus groups that attempted to determine state and local law enforcement's awareness, preparedness and response to this ever-growing problem of Electronic/Computer crime. We worked in conjunction with Tri-Data Corporation on this effort. They were very pleased with the results and submitted a report to Congress, which has since been published.

### **5.2.3 Training and Outreach**

A one-day course entitled "Computer Forensics - A Manager's Perspective" was sponsored by and held at Litton/TASC in Herndon, VA. This course was developed for law enforcement and corporate security managers who must make decisions regarding investments to address computer crime. The objective is to provide managers with an introduction to computer forensics, search and seizure guidelines, the handling of computer evidence, and the types of forensic tools available, and investment options required creating and supporting a computer crime unit. The NLECTC-NE Center was invited to attend as TASC was soliciting reviews of the course content in hopes that it may be something that NIJ or the NLECTC-NE Center would sponsor in the future.

NLECTC-NE also investigated and collected information related to cybercrime and computer forensics resources (i.e., tools, training, etc.) in order to continue the development of a web-based environment for the Northeast Center with regards to cybercrime and computer forensics. Specific tasks include gathering of electronic resources and development of web pages in a user-friendly format and the development of a new cybercrime/computer forensics presentation and demonstration capability for the NLECTC-NE to use in the future. A commercial package, WebBBS, is undergoing testing to determine if its capabilities meet our needs.

A cybercrime timeline chart was drafted for outreach activities. This chart, titled *e-Crime™ - A Law Enforcement Perspective*, illustrates a timeline for cybercrime efforts and can be used as a reference tool for law enforcement as well as tracking pertinent legislation in the electronic crime area to build a comprehensive reference list of policy developments.

Technical assistance was provided to AFRL/IFGB personnel regarding computer forensics tools investigation and assessment and digital laboratory support.

#### **5.2.4 Cybercrime Conferences, Meetings, and Training**

SM&A Corporation employees attended several Cybercrime events over the course of the contract which contributed to their overall knowledge base and expertise which in turn was shared with state and local police agencies across the Northeast Region. These activities are listed as follows.

| DATE           | CONFERENCE  | LOCATION                 |
|----------------|---|--------------------------|
| March 1999     | NIST/OLES- Development of National Guidelines for Electronic Evidence | Gaithersburg, MA         |
| April 1999     | Science and The Law Conference  | San Diego, CA            |
| April-May 1999 | IACIS Training Conference   | Altamonte Springs, FL    |
| May 1999       | Computer Forensic Research and Development Center                     | Utica College, Utica, NY |
| June 1999      | SEARCH Training- Investigation of On-Line Child Exploitation          | Richmond, VA             |
| July 1999      | TASC "A Managers Perspective" Computer Forensic Course                | Herndon, VA              |
| August 1999    | CyberCrime/Computer Forensics Information Technology Exchange         | Albany, NY               |
| August 1999    | NIJ Cybercrime Strategy Meeting                                       | Arlington, VA            |
| September 1999 | NY Electronic Crime Task Force Quarterly Meeting                      | New York, NY             |
| September 1999 | NIJ Cybercrime Strategy Meeting                                       | Arlington, VA            |
| September 1999 | HTCIA 1999 International Training Conference                          | San Diego, CA            |
| October 1999   | NY Electronic Crime Task Force Computer Forensic Training Course      | New York, NY             |
| November 1999  | Economic Crime Investigation Institute 10th Annual Conference         | Tysons Corner, VA        |

| DATE          | CONFERENCE   | LOCATION         |
|---------------|--|------------------|
| December 1999 | NIJ/NLECTC Cybercrime Subcommittee Meeting                       | El Segundo, CA   |
| January 2000  | AFRL/IFGB Briefing at MITRE Corp.                                | Boston, MA       |
| January 2000  | National Summit on CyberCrime                                    | Washington, DC   |
| January 2000  | Tech Fair  | New York, NY     |
| January 2000  | USSS/NYECTF Quarterly Review                                     | New York, NY     |
| March 2000    | NIJ Electronic Crime Program Review                              | Washington, DC   |
| March 2000    | New Technologies for Solving Crime in the 21st Century           | Mashantucket, CT |
| April 2000    | Rochester Project Computer Technology and Investigations seminar | Rochester, NY    |
| April 2000    | NIJ/NLECTC Cybercrime Subcommittee Meeting                       | Rockville, MD    |
| April 2000    | NLECTC-NE Regional Advisory Council Meeting                      | Cromwell, CT     |

### 5.3 CENTRAL NEW YORK-LAW ENFORCEMENT NETWORK (CNY-LEN)

The Central New York Law Enforcement Network (CNY-LEN) is a project to enhance the network and data infrastructure for the law enforcement community in the Central NY area. The Utica 21 Study completed in April 1998 has been utilized as a guide in the development of this program. NLECTC-NE has performed a requirements analysis of the agencies in Central NY and has compiled the following recommendation for implementation and integration.

The Utica Police Department (UPD) will be getting a Computer Aided Dispatch System, a Records Management System, and a Mobile Computer System based on the requirements from the Utica 21 Study. The UPD met with approximately 20 vendors and saw demonstrations. They narrowed their selections down to two vendors and submitted a Request for Information to both vendors. After doing site visits to several customers of the vendors they selected the vendor to install the system in the department. NLECTC-NE answered technical questions during the review process and also reviewed the RFI for technical completeness before it was submitted to the vendors.

Oneida County wanted to expand the capabilities of their shared mug shot system. NLECTC-NE did an analysis of the current vendor to ensure that the product was still a viable solution for the County. NLECTC-NE then arranged a Q&A session between the Oneida County Law Enforcement Agencies and the vendor. After performing an analysis of the departments, the following enhancement was agreed upon. Rome Police Department and New Hartford Police Department were going to get capture stations equivalent to what is currently used at the Utica Police Department; with these capture stations, mug shots taken at any of the individual agencies would be available to all of the agencies. Utica Police Department was going to add a query

station to the CID division and the mug shot system is going to be integrated with their RMS system. The Utica Arson Strike Force and the Oneida County Drug Enforcement Task Force are going to be getting query stations.

Madison County Sheriff's Department already had a mug shot system in their cellblock but need another capture station in the law enforcement division and a query station in the control tower. Again, NLECTC-NE reviewed the current vendor's capabilities and determined that the proposed upgrade would be feasible. The mug shot system will be integrated with their current Jail Management System.

The acquisition and installation of the above infrastructure improvements are to be funded under another contract.

#### **6. FUTURE OUTLOOK**

The vast majority of NLECTC-NE's efforts are ongoing. Technical and administrative support will continue to be provided.

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